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(54) A FISHING VESSEL ESPECIALLY SUITABLE FOR  
 FISHING IN ICEBOUND WATERS

(71) We, CENTRUM TECHNIKI OKRETOWEJ, of ul. Waly Piastowskie 1, Gdafisk, Poland, an Enterprise and existing under the laws of Poland, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a fishing vessel suited especially for operating in icebound waters.

The extent to which known and hitherto used fishing vessels are adapted for fishing in icebound waters is limited. Adaptation is usually confined to strengthening of the ship's hull, to suitably shaping the bow section of the ship, and to equipping the ship with a stern slipway upon which the trawl warps can be thrown off. Such adaptations do not allow an economic and effective exploitation of an icebound fishing ground since e.g. the fishing gear is subject to premature wear, it is likely to break away at the sea bottom, and its mouth is likely to close; the shell plating of the ship's bow section is exposed to wear caused by contact with the ice, and the ship's propeller is likely to become damaged by the ice fragments which get under the ship's bottom. Moreover the slipways which are presently in use cause the catch to become partially damaged at the time when the fishing gear is hauled aboard. Ships of the LASH-type are known, such vessels having side sections extending above the water line beyond the stern, these sections forming platforms for two crane tracks, the crane being used for lifting and lowering barges which the ship transports. The propeller of a ship of this type is traditionally located in the stern section of the hull.

The function of a LASH-ship is entirely different from that of a fishing vessel, and thus the construction and the ship's equipment are also different. The elements which extend beyond the stern section of the ship constitute the tracks of a crane used for lifting of barges. The sterns of LASH

ships are for a purpose other than maintaining a water channel free of ice behind the ship.

The object of this invention is to eliminate or mitigate the above mentioned disadvantages.

According to the invention there is provided a fishing vessel especially suitable for fishing in icebound waters, comprising a hull having a bulbous bow which is rhomboid in transverse vertical section and has a leading edge which is surrounded with a groin, a stern recess extending longitudinally forwards from the stern in the aft portion of the ship, said recess accommodating a slipway for hauling a trawl-net on board, equipment arranged on both sides of the said recess in the midship and the aft portions of the hull, said equipment being designed for holding of trawl warps and of fishing gear in the recess and for holding of the trawl warps themselves above the working deck or above the water line, a propeller arranged at the forward end of the recess and channels located in the bottom of the hull for directing the water to the propeller and via the propeller to the recess in the aft portion of the hull.

The reinforced bulbous bow prevents the ice from getting under the hull, because the ice is cut from its bottom upwards by the bow and then pushed away to the sides, thus increasing the life of the hull and reducing the risk of propeller damage. The stern recess will contain ice free water thus allowing an effective fishing in icebound fishing grounds.

The slipway arranged in the stern recess of the hull eliminates the risk of damage to the catch at the time when the fishing gear is hauled aboard. The location of the propeller at the forward end of the recess ensures that the water contained in the recess is kept free of ice, and reduces the danger of propeller damage from fragments of ice. Introduction of equipment to hold the warps and the fishing gear in a water zone which is free of ice allows for efficient

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fishing and eliminates the danger of the fishing gear being damaged by ice. The channels suitably shaped in the hull bottom direct a water flow to the propeller and into the recess which is ice free.

Embodiments of the invention will now be described by way of example with reference to the accompanying drawings, in which:—

Fig. 1 illustrates the stern of the hull of a fishing vessel with the slipway and associated warp guiding equipment in a sectional elevation along a plane A—A parallel to the plane of ship's symmetry.

Fig. 2 illustrates the stern of the hull with the slipway and with the above mentioned equipment in plan;

Fig. 3 illustrates the bulbous bow of the vessel in a side view;

Fig. 4 illustrates the bulbous bow of the vessel in a front view;

Fig. 5 illustrates a modified version of the vessel in plan;

Fig. 6 illustrates the ship's hull of Fig. 5 in a side view, with the stern recess partially covered by a bridging member; and

Fig. 7 illustrates the body lines of the hull near the propeller, these body lines being confined between the plane of symmetry and the ship's side.

The fishing vessel is equipped with a bulbous bow 2 which is rhomboid in transverse vertical section. The cutting or leading edge of the bulbous bow is reinforced with a groin 5 which is made of an abrasion resistant steel. A longitudinally extending recess 1 is arranged in the aft portion of the hull.

Trawl gear handling equipment 7, 8 is installed on the deck near the recess, said equipment holding the trawl warps above the working deck or above the water line. The equipment includes two rollers 7 for guiding and supporting the trawl warps in the water and fairleads 8 having rollers directing the warp to trawl winches. An adjustable slipway 6 is hinged at the forward end of the recess, said slipway being rounded in its aft, operatively submerged portion so as to prevent damage to the trawl-net and to the catch. Alternatively, the slipway 6 may be rigidly fixed in the recess. The ship is equipped with two conventional rudders 4 and with a propeller 3 situated at the forward end of the recess. Hydraulic power systems are used to

operate the stern slipway and the equipment holding the warps. Two channels 9 are arranged in the bottom of the ship's hull and flare towards the bow and narrow and deepen at the propeller 3 to direct water to the propeller and via the propeller to the recess (see Fig. 7).

In the modification of the fishing vessel shown in Fig. 5 and in Fig. 6, the recess 1 is furnished with a bridging member 10 which stiffens the hull at the recessed stern and forms a deck to facilitate fishing operations.

#### WHAT WE CLAIM IS:—

1. A fishing vessel especially suitable for fishing in icebound waters, comprising a hull having a bulbous bow which is rhomboid in transverse vertical section and has a leading edge which is surrounded with a groin, a stern recess extending longitudinally forwards from the stern in the aft portion of the ship, said recess accommodating a slipway for hauling a trawl-net on board, equipment arranged on both sides of the said recess in the midship and the aft portions of the hull, said equipment being designed for holding of trawl warps and of fishing gear in the recess and for holding of the trawl warps themselves above the working deck or above the water line, a propeller arranged at the forward end of the recess, and channels located in the bottom of the hull for directing water to the propeller and via the propeller to the recess in the aft portion of the hull.

2. A fishing vessel as claimed in Claim 1, wherein an operatively submerged portion of the said slipway is rounded to facilitate the operation of hauling of the trawl-net and the catch aboard.

3. A fishing vessel as claimed in Claim 1 or 2, wherein the slipway is fixed.

4. A fishing vessel as claimed in Claim 1 or 2, wherein the slipway is pivotable about a horizontal transverse hinge arranged on the forward end of the recess.

5. A fishing vessel as claimed in any one of Claims 1 to 4, wherein the channels provided in the bottom of the hull, deepen afterwards.

6. A fishing vessel as claimed in any one of Claims 1 to 5, wherein a bridging member extends transversely above the water line across the recess.

7. A fishing vessel especially suitable for

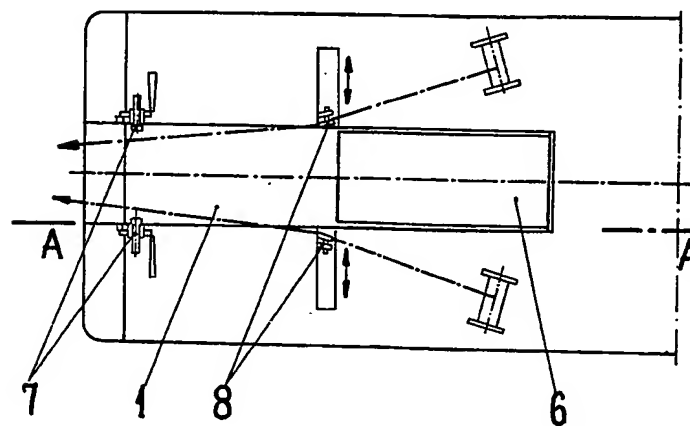
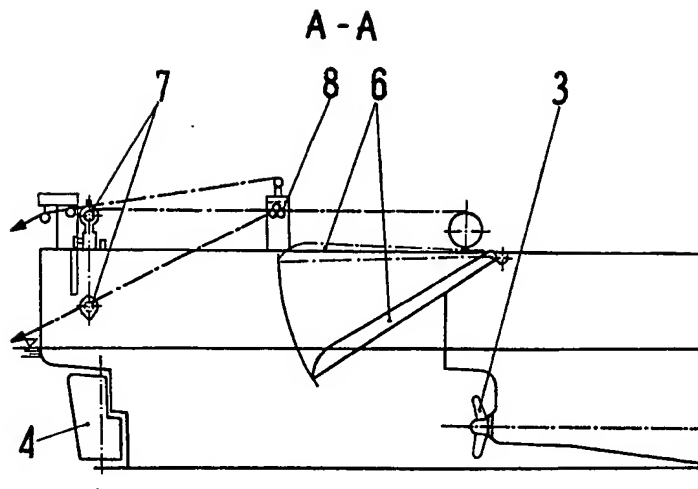
fishing in icebound waters, substantially as hereinbefore described with reference to Figs. 1 to 4 and 7 of the accompanying drawings.

- 5 8. A fishing vessel as claimed in Claim 7 but modified substantially as hereinbefore described with reference to Figs. 5 and 6 of the accompanying drawings.

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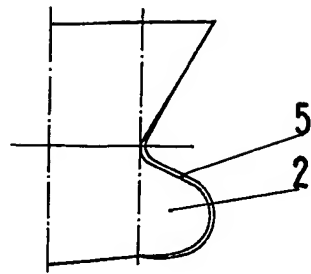


Fig. 3

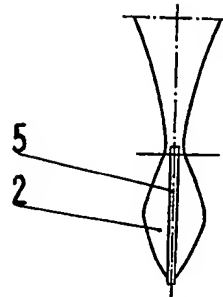


Fig. 4

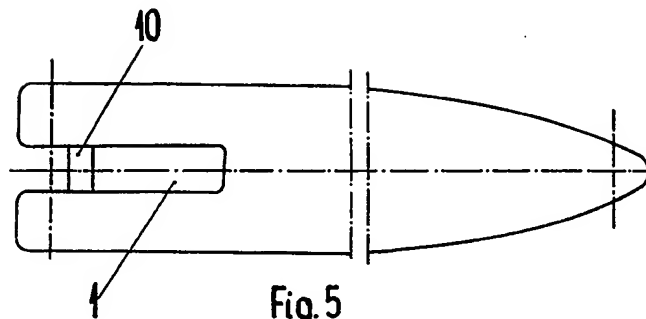


Fig. 5

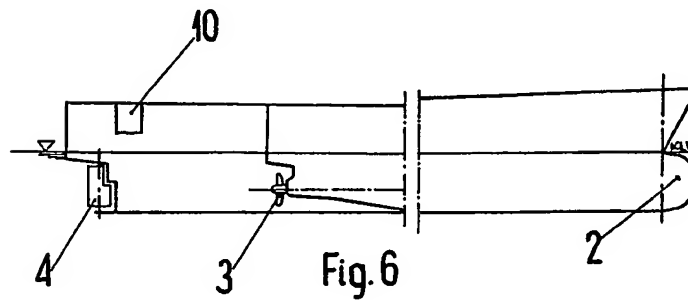


Fig. 6

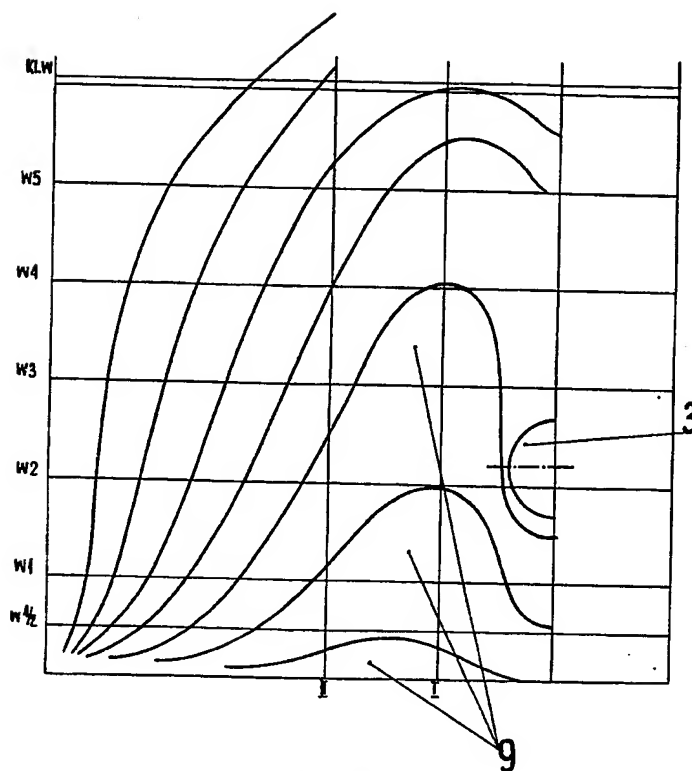


Fig. 7